

REMARKS

Claims 30-59 are pending. The Office finds that claims 30-33 are allowable and that claims 43-59 would be allowable if rewritten in independent form. Office Action, page 8. Solely to facilitate prosecution, Applicants have amended claim 34 to recite the use of a working electrode and application of a potential to the electrode. Support for this amendment may be found in the specification at, for example, paragraph [0193]. Claims 34-42 remain rejected under one or more of 35 U.S.C. §§ 102 and 103. Applicants address each of these rejections below, according to their statutory origin.

Anticipation Rejections

The Office rejects claims 34-36, 38-40, and 42 under 35 U.S.C. §102(b) in light of Rajagopal et al. (*J. Photochem. Photobiol. A: Chem* 69:83-89 (1992)). According to the Office, Rajagopal teaches a method for detecting an analyte where the analyte is the solvent, comprising the steps of claim 34. Office Action, pages 2 and 3. The Office cites Table 2, Table 3, and page 83, column 2 of Rajagopal for alleged support.

Regarding claims 35, 36, 38, and 39, the Office believes this reference teaches phenol, benzene, carboxylic acid, and carboxylate moieties in Table 2. Office Action, page 3. For claims 40 and 42, Rajagopal allegedly teaches in Table 3 an ECL reagent with Ruthenium 4-alkyl, 4'-methyl-2,2'-bipyridine. Office Action, page 3.

The Office now asserts that claim 34, unlike allowed claim 30, does not recite a particular form of stimulation for the ECL label such as an electrode. The emission and redox potentials of the ECL reagents allegedly taught in these references would, according to the Office, give the same physical signal regardless of how the reagent was stimulated to produce the signal. Thus, the Office concludes, because claim 34 recites detection of the signal and does not specify a mode of stimulation, these

references anticipate claims 34-42. Applicants note that the Office also uses this argument with respect to Vera and Kuzmin, discussed below. Office Action, pages 8-9. Applicants respectfully traverse this rejection.

The use of an electrode to enable the electrochemiluminescence reaction is implicit in the term "ECL emission." As the specification explains, a sample must be electrolyzed to produce oxidized and/or reduced species that directly or indirectly emit photons. See paragraph [0193] of the published application. A working electrode electrolyzes the sample when a potential is applied to the electrode. See *id.* In contrast, the fluorescent signals measured in Rajagopal do not involve the generation of an electronically excited chemical species via running a potential through an electrode. To expressly recite what was implicit in claim 34, Applicants have amended this claim to recite the use of a working electrode and application of a potential to the electrode. Like allowed claim 30, claim 34 recites a form of stimulation for the ECL label such as an electrode, which is not taught in Rajagopal. Applicants request that this rejection be withdrawn.

Claims 34-36, 38-40, and 42 stand rejected under 35 U.S.C. §102(b) in light of Vera et al. (*J. Photochem. Photobiol. A: Chem* 76:13-19 (1993)). Office Action, page 3. According to the Office, Vera teaches a method for detecting an analyte where the analyte is a pH solution, comprising the steps of claim 34. Office Action, pages 3-4. The Office cites Table 1 and page 13, column 2 for alleged support. *Id.* Regarding claims 35, 36, 38, and 39, the Office believes this reference teaches phenol, benzene, carboxylic acid, and carboxylate moieties in Table 1. Office Action, page 4. For claims 40 and 42, Vera allegedly teaches in Table 1 an ECL reagent with Ruthenium

bipyridine. *Id.* Applicants traverse, addressing this rejection with respect to independent claim 34.

Just as with Rajagopal, Vera measured fluorescence, not electrochemiluminescence. See page 14, left column, under section 2.1. As discussed above, however, measuring fluorescent signals does not involve the generation of an electronically excited chemical species via running a potential through an electrode. Applicants amended claim 34 to recite the use of a working electrode and application of a potential to the electrode. Thus, like allowed claim 30, claim 34 recites a form of stimulation for the ECL label such as an electrode, which is not taught in Vera. Applicants therefore request that the Office withdraw this rejection.

The Office rejects claims 34, 35, 37, 40, and 42 under 35 U.S.C. §102(b) in light of Kuzmin et al. (*J. Photochem. Photobiol. A: Chem* 87:43-54 (1995)). The Office believes that Kuzmin teaches a method for detecting an analyte, where SDS micelles and micelle concentrations are the analyte, comprising the steps of claim 34. Office Action, pages 4-5. The Office cites the abstract, Figure 1, Figure 3, and Table 1 for alleged support. *Id.* For claims 35 and 37, the Office believes that this reference teaches quinone moieties in Table 1. Office Action, page 5. Regarding claims 40 and 42, Table 1 and the abstract of Kuzmin allegedly teach an ECL reagent with Ruthenium bipyridine. *Id.* Applicants traverse, addressing this rejection with respect to independent claim 34.

Like the first two references cited against claim 34, Kuzmin also measures fluorescence instead of electrochemiluminescence. See page 44, right column. Measuring fluorescent signals does not involve the use of a working electrode or running a potential through that electrode as presently recited in claim 34. Because

Kuzmin does not teach these elements of claim 34, this reference cannot anticipate claims 34, 35, 37, 40, and 42. Applicants request that this rejection be withdrawn.

Obviousness Rejection

The Office rejects claim 41 as allegedly obvious in light of Kuzmin. The Office believes that Kuzmin teaches a method for detecting an analyte where the analyte is the solvent, comprising the steps of claim 34. Office Action, page 6. The Office asserts that Kuzmin also allegedly teaches that ruthenium and osmium were known equivalents and concludes that it would be obvious to substitute osmium for ruthenium since the reference allegedly teaches that they are equivalents. Office Action, page 7.

For the reasons discussed above, Kuzmin does not teach the assay of independent claim 34. Thus, in the absence of a teaching of the claimed assay format (electrochemiluminescence) and a motivation to make the substitution suggested by the Examiner, Kuzmin cannot render claim 41 obvious. Applicants therefore request that the Office withdraw this rejection of claim 41.

Moreover, the Office's cite to Kuzmin does not suggest that osmium and ruthenium are equivalents. Page 51, column 2, paragraph 4 of Kuzmin discusses an apparent inconsistency in the data. Based on ΔG values, it appeared that the sample reactants were in a polar microenvironment. But the spectral properties of RuL_6^{2+} suggested a low polarity environment. Kuzmin provides an explanation for this discrepancy, discussing the localized effect water molecules might have on RuL_6^{2+} . In this discussion, Kuzmin notes a study looking at the isotope effect on the lifetimes of osmium (Os) and ruthenium (Ru) complexes and micellar solutions showed that about 30% of the ligand surface of RuL_6^{2+} was accessible to water molecules. Assuming that Kuzmin's description of this study is accurate, this study addresses the behavior of Os

and Ru compounds in micellar environments. This study does not address the ability of Ru and Os compounds to act as ECL labels as recited in claims 40 and 41 let alone show an equivalence between the two metals in the context of an ECL label. Thus, the motivation in Kuzmin relied upon by the Office to use Os instead of Ru is not in the reference. Therefore, Applicants request that the Office withdraw this obviousness rejection.

Conclusions

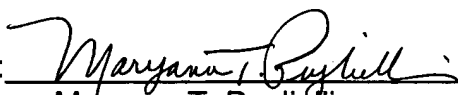
In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of pending claims 30-59.

Please also grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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